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ABSTRACT

This study explored the relationship between discourse topics and interlanguage variation, describing the following: relationships between discourse topics and a second language learner's participation in native speaker/non-native speaker (NS-NNS) conversation; relationships between discourse topics and the grammatical complexity, accuracy, and fluency of a second language learner's oral production; and how second language acquisition processes such as language transfer would occur differentially within discourse domains. Data were collected through one Taiwanese graduate student's conversational interactions over time with an English NS and a Japanese graduate student who met regularly to practice English. Six NS-NNS conversation topics were covered. Data were analyzed for dominance, syntactic complexity, accuracy, and fluency. In a second study, six Taiwanese in the United States listed discourse topics they would like to discuss and topics they felt neutral about. Each participant gave a presentation on their topic of choice and completed an interview about their process of selecting and presenting a topic. Transcripts were analyzed for grammatical complexity, fluency, and accuracy. Overall, results indicated that discourse topics affected second language learners' conversational participation. Willingness to participate in a conversation depended upon familiarity with the topic. (Contains 18 tables and 26 references.) (SM)

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Abstract

In the field of second and foreign language acquisition, it is now widely recognized that a second language learner's language, like the language of native speakers, varies. Several causes of interlanguage variation such as linguistic contexts, tasks, and interlocutors have been identified and researched. However, there may be other factors in interlanguage variation that remain unexplored or under-researched. Topic of discourse is one such factor. As Tarone (1988) states "the topic of communication... is one of the most under-researched areas in the study of interlanguage variation" and "the precise effects of topic upon variation have yet to be established" (p. 119). Among the limited amount of literature concerning the effect of content knowledge on L2 oral performance, the research designs and contexts are varied, and the findings are inconclusive. In response to the scarcity of research on topic-related interlanguage variation, the purpose of the present study was to explore the relationship between discourse topics and interlanguage variation. This research had three specific purposes: (1) to describe the relationships between discourse topics and a second language learner's participation in NS-NNS conversation; (2) to describe the relationships between discourse topics and the grammatical complexity, the accuracy and the fluency of second language learner's oral production and (3) to examine whether SLA processes such as language transfer take place differentially within discourse domains, as held in the discourse domain hypothesis advanced by Selinker and Douglas.

INTRODUCTION

In the field of second and foreign language acquisition, it is now widely recognized that a second language learner's language, like the language of native speakers, varies. Several causes of interlanguage variation such as linguistic contexts, tasks, and interlocutors have been identified and researched. However, there may be other factors in interlanguage variation that remain unexplored or under-researched. Topic of discourse is one such factor. As Tarone (1988) states "the topic of communication... is one of the most under-researched areas in the study of interlanguage variation" and "the precise effects of topic upon variation have yet to be established" (p. 119). Among the limited amount of literature concerning the effect of content knowledge on L2 oral performance, the research designs and contexts are varied, and the findings are inconclusive. In response to the scarcity of research on topic-related interlanguage variation, the purpose of the present study was to explore the relationship between discourse topics and interlanguage variation. This research had three specific purposes: (1) to describe the relationships between discourse topics and a second language learner's participation in NS-NNS conversation; (2) to describe the relationships between discourse topics and the grammatical complexity; the accuracy and the fluency of second language learner's oral production and (3) to examine whether SLA processes such as language transfer

take place differentially within discourse domains, as held in the discourse domain hypothesis advanced by Selinker and Douglas.

LITERATURE REVIEW

Several studies of NS-NNS interaction have established that the discourse topic exerts an influence in the discourse level of IL speech. Learners' expertise on the discourse topic has been shown to have a great impact on L2 learners' pronunciation by Eisenstein and Starbuck (1989). In the same vein, studies by Woken and Swales (1989), Zuengler (1989, 1993) and Zuengler and Bent (1993) revealed that in NS-NNS interaction, greater content knowledge resulted in non-native speakers' dominance in a dyadic conversation. Selinker and Douglas (1985, 1986, 1989) conducted a series of case studies involving interviews of non-native graduate students on work and life domain topics. It was found that subjects employed different communicative strategies and rhetorical organization in talking about their major fields than they did in talking about their own lives or culture.

The findings of this research area, however, are not unequivocal. Whereas Whyte (1992, 1994a, 1995) found topic effects for expert speakers in terms of fluency and discourse features, Whyte (1994b) did not find cross-topic differences in fluency measures. While the discourse topic has been shown to affect the syntactic area of learners' oral production by Cornu & Delahaye (1987), Woken and Swales (1989), and Young (1991), studies by Clapham (1993), Douglas & Selinker

(1990, 1992, 1993), Smith (1989, 1992) and Whyte (1994b) did not find topic effect on grammatical competence.

Selinker and Douglas (1985) proposed a discourse domain hypothesis which seeks to describe and explain the cross-topic variation. They defined the discourse domains as a personally and internally constructed "slice" of one's life that has importance and over which the learner exercises content-control. The discourse domain hypothesis proposes the following prediction:

1. In creating ILs, a learner creates discourse domains and uses them to develop his/her IL structure(s)...The important processes in IL learning (e.g., fossilization, backsliding, language transfer, communicative strategies, etc. rarely occur across ILs, but occur primarily within discourse domains.
2. Discourse domains influence the syntactic units of IL learning.
3. No IL learner is monostylistic.

This hypothesis, although intuitively appealing, has not attracted much attention from researchers. In addition to the studies done by Selinker and Douglas (1985, 1986, 1987, 1989), only two researchers (Whyte, 1992, 1993, 1994, and Cornu and Delahaye, 1987) have investigated the discourse domain hypothesis. It is clear that research on topic-related interlanguage variation is in its infancy. The literature concerning the topic effects on learners' interlanguage variation is

scant and the research findings are not consistent. The precise effects of the discourse topic on IL variation have not yet been established. Aside from the dearth of research on topic-related interlanguage variation and the inconclusive findings, previous studies also suggested that special care in the research design of further study is needed. Most studies collected NS-NNS interaction data through interview and some studies even compared the data elicited by different interviewers on different topics, which introduces an interlocutor factor into the studies as a confounding variable. Moreover, the majority of studies contrasted subjects' performance on an academic major topic and a life story topic. Researchers assigned the topics, assuming that the academic major topic is the discourse topic with which L2 learners are familiar and would perform better. The individual difference, however, may need to be taken into consideration. Although to assume that international students can perform better on a topic from their major field than on other so-called "general" topics seems reasonable, the assumption failed to consider that for some learners, the input (content knowledge) that they get does not necessarily become output because of the linguistic barrier. It is more likely that it is the subject who knows which topic with which he/she is most familiar.

If the purpose of the study is to examine the topic effects on learners' interlanguage variation, a research design which avoids the interlocutor factor being a possible confounding variable and takes individual difference into consideration is

called for. The present study contributes to this developing research tradition with an investigation using research designs avoiding the aforementioned problems. Two studies are included: one collected data from NS-NNS natural conversation; the other collected data from NNS presentation.

Study 1

METHODS

The data of the first study was collected through one Taiwanese graduate student's conversational interaction with a native speaker and a Japanese graduate student. They were well-acquainted with each other. The original reason for them to get together stemmed from the need of the Taiwanese graduate student to improve her English. To avoid using her mother tongue, she invited the Japanese graduate student, who is a good friend of hers, instead of her Taiwanese friends to practice English with a male native speaker of English. Both international students were graduate students at a midwestern university, majoring in TESOL. They had been in the United States for two and a half years. Both of them had been studying English for more than ten years and both had TOEFL scores of over 600. The native speaker of English was also a graduate student majoring in TESOL.

They met with each other once a week for about four months. The way they learned English was initially to allow the two learners to have a free conversation for ten minutes, which was audiotaped. And then the three of them played the tape back and listened to the conversation all over again. The learners

could stop the tape at any point when they had a question. The native speaker of English (teacher) could stop the tape if he needed to correct errors. However, this process had to be modified because the teacher felt that without his participation, it was hard to understand the learners' conversation. Thus, the teacher began to take part in the conversation. The rest of the process remained the same. The amount of time needed to listen to the conversation varied from one week to three weeks, depending on the length of the conversation and how many questions the learners had. Both the learners and the teacher kept journals after every session.

For the purpose of this study, the conversation session involving the NS and NNS was included for data analysis. Six NS-NNS conversation topics were covered: New Year's Day, pronunciation, religion, sports, Singapore, and the ESL program. The length of conversation on each topic ranged from eight minutes to 25 minutes. With the intent to minimize the interlocutor effect being a confounding variable, the data of the present study were collected from three friends in a natural conversation setting, unlike the previously mentioned studies in which participants were interviewed by a stranger or were asked to have a conversation with a stranger on a certain topic. In addition, this study collected the data for a relatively longer period of time compared with those previous studies.

The data were first transcribed and then analyzed from the following perspectives: dominance, syntactic complexity, accuracy, and fluency.

FINDINGS

A. Dominance

Dominance is measured by counting the total amount of verbal exchanges per person within the time span of the conversation and of the total amount of words per exchange. The results are illustrated in the following tables.

Insert Table 1 about here

As Table 1 shows, the learner's turn-taking patterns varied across topics. Among the six topics, the variance was most pronounced on the topics of "New Year Day," "pronunciation," and "sport." When the Taiwanese student engaged in the discussion of the topics of "New Year's Day" and "pronunciation," the turns she took on are either equal to (i.e., New Year's Day (42:42)), or more than the native speaker of English (i.e., Pronunciation (31:29)). However, she was relatively quiet on the topic of "sport" and took only ten turns out of seventy. On the topics of "religion," "Singapore" and "ESL program," even though the native speaker seemingly dominated the conversation, the Taiwanese student's participation was active compared with her participation in the topic of "sports."

However, while counting the amount of students' turn-taking is certainly important as revealed in Table 1, it can not provide us with the complete picture. Hence, the amount of words uttered in each topic is counted as shown in Table 2.

Insert Table 2 about here

As far as the total amount of words is concerned, Table 2 illustrates the cross-topic variation on the subject's oral production. As shown in Table 2, the total amount of words she uttered on the topic of "New Year's Day" and "pronunciation" are even more than that of the native speaker's which supports the results of her turn-taking patterns on those topics. As mentioned earlier, analysis of her turn-taking patterns showed that she participated actively on these two topics. In fact, both Table 1 and Table 2 revealed that the Taiwanese student not only actively took turns to participate in the conversation on the topic of "New Year's Day" and "pronunciation" but also talked at length on these two topics in terms of total amount of words. Similarly, the total amount of words she uttered on the topic of "sports" parallels her turn-taking pattern in that topic. She was relatively quiet on the topic of "sports," about which she was not knowledgeable.

Insert Table 3 about here

Table 3 presents the average number of words uttered by participants per turn. As Table 3 shows, the Chinese subject's turns were longer on the topics of "religion" and "pronunciation" (i.e., 31.57, and 24.41 words per turn, respectively) than on the other topics. With regard to her performance on the topic of "sports," even though she was relatively quiet in terms of her turn-taking pattern and the total amount of

words uttered, the length of her turn on the topic of "sports" is not the shortest among the six topics. Interestingly, the length of her turn was shortest on the topic of "New Year's Day," in which she participated very actively from the perspective of her turn-taking patterns. This indicates that the subject may either take a lot of turns but only hold the floor for a short amount of time or else take less turns and hold the floor longer.

The native speaker apparently spoke extensively on each turn in the discussion on the topic of religion. However, this may be due to the nature of this particular conversation. During the conversation, the Taiwanese student and the Japanese student brought up some controversial issues such as "How can one believe in something he can not see?" or "Can a Chinese Christian worship his or her ancestors?". The native speaker talked at length in the conversation because he needed to answer all these questions and help them to think through all these issues.

In addition to the quantity of turns, the quality of the turns the Taiwanese subject took was analyzed. In order to further examine how actively the subject participated in the interaction, the identification of the learner's initiative in the conversation is crucial. The analytical system proposed by van Lier (1988) was employed to examine the implication of different turn-taking actions. His analytical system enables the researcher to identify whether a turn is allocated or self-selected, whether a turn is allocating the next turn, whether there is any new information (i.e.

new topics) given in a turn and how a turn-taking can reflect an attempt to set up, change or close a series of sequentially related turns. In so doing, not only the quantity of turns but also the quality of turns the subject took can be obtained, which allows us to have an insightful understanding of the status of the subject's participation in the interaction.

Table 4 presents the quantitative results of the Taiwanese student's overall participation across topics. The second column illustrates the percentage of the total number of turns the Taiwanese student took across topics. The third and fourth columns show the participation level and participation index of the Taiwanese student across topics. The last column of the table shows a rank order based on the Taiwanese subject's participation across topics.

As shown on Table 4, in terms of the quantity of turns, the Taiwanese subject contributed most on the topic of "pronunciation" (39% of the total turns) followed by the topics of "ESL program" (37.04%), "religion" (34.88%), "New Year's Day"(33.33%), "Singapore" (22.62%) and "sports"(14.29%). In terms of the quality of the turns, the Taiwanese subject obtained the highest participation value on the topic of "pronunciation" (44.95 PV) followed by the topic of "New Year's Day" (44.94), "religion" (37.8), "Singapore" (26.03), "ESL program" (25) and "sports" (9). When taking both the quantity of turns and the degree of initiative the turn implied into account, the Taiwanese learner participated most actively on the topic of

"pronunciation" with a participation index of 83.55. The rank of her participation across topics decreased on the topic of ESL program, religion, Singapore, New Year's Day and sports.

Insert Table 4 about here

In addition to actively taking turns to participate in the conversation, the Taiwanese subject often initiated new sub-topics by asking other interlocutors questions on topics with which she was familiar (i.e., New Year Day, pronunciation, and religion), which rarely happened in the topic of "sports." In the conversation on the topic of "sports" and "Singapore," she only passively answered the questions that were asked by other interlocutors.

In order to further investigate how the Taiwanese student was involved across topics in different aspects of initiation, tables were constructed based on the subject's participation value received in the categories of topic work, self-selection, allocation, and sequencing of discourse. Analysis of categorical participation permits the researcher to identify whether there was a discourse pattern for the subject to initiate when speaking on different topics. The participation values of the Taiwanese subject were converted to percentage values for comparison purposes.

Table 5 summarizes how the Taiwanese subject performed across topics in the four initiative categories, while Figures 1 and 2 provide a graphical comparison of the percentage differences across topics and across four categories. As shown in Figure 1, in the area of topic initiation, a comparison of participation percentages shows that the Taiwanese subject did more topic work (initiating new sub-topics, brining new information) on the topics of "pronunciation," "religion" and "New Year's Day" than on the rest of the topics. As far as self-selection is concerned, she participated more actively on the topic of "pronunciation" and "religion." With regard to the area of allocation, as shown in Figure 1, the quantitative difference in terms of percentage value across topics in this area was dramatic between the highest and the second highest participation value. The Taiwanese student did more allocation of speakers on the topic of "pronunciation"(52.94%). The next highest percentage value of allocation was 27.27% on the topic of "New Year's Day." Her difference in the area of allocation across topics revealed a topic-related variation on the Taiwanese subject's participation. When she was familiar with a topic, she was more engaged in the topic, which was illustrated by the fact that she did much more allocating of next speakers on the topic of "pronunciation" than the rest of the topics. Concerning the sequencing of discourse, the results showed that the Taiwanese subject did more sequencing work, again, on the topic of "pronunciation."

Insert Table 5 and Figure 1, 2 about here

As Figure 2 shows, on the topic of "pronunciation," which she was familiar with and interested in, her categorical performance was high on every category, which indicates that she actively interacted with other interlocutors by specifying speakers of next turns, volunteered to respond to the interlocutor frequently, and contributed to the topic development. Similarly, her categorical performance was low on every category on the topic of "sport," which she did not know much about and didn't have much to say. On the remaining four topics-- "New Year's Day," "religion," "Singapore" and "ESL programs" --her categorical performance varied. Generally speaking, she did allocation work the least among four areas of initiation on these four topics.

Students' journal entries can provide answers to account for differences. The Taiwanese student wrote,

> Journal Entry Jan. 3
> It's so hard for us to come up a new topic to talk today. I suggested we talk about abortion. But Yuko disagreed because she did not feel comfortable. We find it finally. And it (the topic) is good although I don't know much about it and don't have much to say. Today's topic is "sport." I am not a sport fan. I don't like football because it's too violent. However, knowing how to discuss sport with American is important. I'd like to spend more time on this issue so that I can have something to say when I have to talk to an American.

The Japanese student's journal also revealed the effect of the topic variable on her participation. She wrote,

Journal Entry Feb. 15

> Since we talked about religion, I was not able to participate the conversation actively. Probably I said something only several times and said something wide at mark. This is the hardest topic for me.

Feb. 24

> We continued to talk about religion. I have to admit I am not enthusiastic about this topic. Well, it's not true. I am interested in this topic, but it is very hard to have my opinion on religion. I don't think I can describe my feeling even in Japanese. Something about this topic keep bothering me, but I don't know what. Probably, there is a stigma attached to religion in my mind and it prevents me from thinking rationally. I feel like I am left out, but it's nice to learn anything you don't know. I learn many things in these sessions but I sometimes doubt if I really learn English itself.

She revealed her discomfort with this particular topic not only in her journal entry but also in the discussion and the reflection period. In the transcription (lines 119-120), she mentioned that " I don't believe in Shinto. I don't have any religion.... I don't know anything about Christianity or Buddhism. This is really not a topic for me." However, the conversation still continued. During the reflection period, her responses to the teacher showed the complicated nature of second language acquisition. Various factors such as a lack of topic knowledge, linguistic knowledge and affective factors which are intricately interwoven all affect

students' participation in the conversation. The following dialogues from the reflection period, for instance, help illuminate this complex topic-related issue.

> NS: How do you feel in general?
> NNS(J): I just relieved that we finished whole conversation.
> NS: Do you think we spend too much time?
> NNS(J): No, I don't think so because this is a really abstract topic, I need particular word or phrases to express my emotion....I thought these three weeks are really very useful.
> NS: It's been three weeks?.... So, you think it's useful.
> NNS(J): Yes. I think so because I try to avoid this topic before....whenever I can't say anything on particular issue I just feel that I am stupid or something. I really don't like that kind of feeling.

Both the quantitative and qualitative data have shown that the discourse topics do affect second language learner's conversational participation. A subject's willingness to participate in a conversation depends on the degree of her familiarity with the topic. The results of this analysis of turn-taking patterns across topics in natural conversation echo the findings of other topic-related interlanguage variation studies conducted in different research contexts.

B. Syntactic complexity

In this section, the effect of topic knowledge on learners' syntactic complexity is measured in terms of the total number of T-units and the average length of T-units. The analysis of syntactic complexity began with dividing the transcription data into clauses and T-units. This analysis uses Hunt's (1970) definition of a T-unit as an

independent clause plus all associated dependent clauses. The results are shown in the following tables.

Insert Table 6 about here

As shown in Table 6, cross-topic variation in grammatical complexity for the Taiwanese student was observed among topics. The Taiwanese subject's average length of T-units on the topic of "sport," about which she was not knowledgeable, is much shorter (6.9 words) than that on the rest of the topics. Unlike the Japanese student, the overall syntactic complexity of the Taiwanese student measured by the mean length of T-units varied dramatically across topics. Her shortest mean length of T-units was on the topic of "sports" (6.9 words) about which she was not knowledgeable, and the longest on the topic of "pronunciation" (10.8 words). Compared with the Taiwanese student, it seems that the overall syntactic complexity of the Japanese student's speech is less affected by the topic variable. Even on the topic she is not familiar with (i.e., religion), the average length of her T-units did not vary dramatically.

In comparing the Chinese subject's average length of T-unit with her participation rank shown on Table 6, the average length of T-unit in her speech production is highly correlated with the participation rank, except for the topic of "pronunciation" and "religion." In other words, the degree of syntactic complexity

of the Taiwanese subject's oral production changed according to her interests or involvement in the discourse topics.

C. Accuracy

To measure grammatical accuracy, the grammatical errors in the subject's oral production were first identified by the researcher and then checked by a native speaker of English. The error rate on each discourse topic was calculated by dividing the total number of errors made in each topic by the total number of T-units. For instance, on the topic of "New Year's Day," her total of 14 errors divided by the T-units total of 41 results in a rate of 0.34 errors per T-unit.

As shown in Table 7, the Taiwanese student's accuracy rate varied across topic. She produced the least accurate speech on the topic of "sports" (i.e., 0.76 errors per T-unit), which she was not familiar with or interested in. Her grammatical error rate was high (i.e., 0.51 errors per T-unit) on the topic of "pronunciation" in which her participation level was highest among topics. On the rest of the four topics: "ESL program," "New Year's Day," "Religion" and "Singapore," the cross-topic variation in grammatical accuracy was not as distinct as the topic of "sports" and "pronunciation".

Insert Table 7 about here

D. Fluency

Fluency is measured in terms of time at talk and speech rate. Talk on each topic is timed in its entirety, and then the Taiwanese subject's turn is timed from the end of the preceding interlocutor's turn to the beginning of the following one. The time at talk for the subject was measured in terms of speech time, which is the total time spent by the speaker on each topic. Mean turn length is calculated by dividing the total time at talk by the number of turns the subject took. The speech rate for each topic is calculated by dividing the total learner time at talk by the total number of words and t-units produced. For the purpose of this study, the filled pauses, such as "uh" and "hmm" were excluded in the word count. The results are presented in Tables 8 and 9.

Insert Table 8, 9 about here

The results of the fluency analysis manifested cross-topic variation. Interestingly, as Table 8 shows, the Taiwanese student produced the highest speech rate on the topic of "New Year's Day" instead of "pronunciation," which she was the most interested in and familiar with and in which she participated most actively in terms of turn-taking pattern. Her speech rate on the topic of "sports" is lowest in terms of measuring the total amount of words per minute, which is parallel to her participation level. However, when the speech rate is measured in terms of T-units

produced per minute, the number of t-units produced per minute on the topic of "sports", as shown in the Table 9, was not the least among the topics.

Table 10 indicates the amount of time the Taiwanese subject spoke on each topic and the average length of the turns she took. With regard to the measure of speech time, the Chinese subject spent more time on the topics of "New Year's Day," "pronunciation" and "religion." She took up 35.51% of the time in the conversation on the topic of "New Year's Day," 30.33% on the topic of "pronunciation" and 29.12% of the time on the topic of "religion." Again, the Taiwanese subject had the shortest speech time on the topic of "sports" (16.58% of total time).

Insert Table 10 about here

The variation in the average turn length across topics was also apparent. However, the pattern which emerged was not paralleled to the subject's participation level. As shown in Table 10, the subject's average turn length was longest on the topic of "religion" (16.18 sec), followed by the topics of "pronunciation" (10.16), "Singapore" (8.99), "ESL program"(6.62), "sports" (6.31) and "New Year's Day"(4.73) respectively. It is interesting that the average turn length was shortest on the topic of "New Year's Day," in which her fluency measure was the highest and participation rank in terms of quantity of turn-taking was second.

E. Language transfer: The omission of the final stops

To investigate whether SLA processes such as language transfer occurs differentially across domains, one aspect of language transfer --the omission of final stops-- was examined. The final stops /p/, /b/, /t/, /d/, /k/, and /g/ were first identified and then the total number of final stops counted. Second, the pronunciation of each word containing these final stops was checked for each topic. The ambiguous cases were then examined through a spectrogram.

Insert Table 11 about here

Table 11 reveals that the Taiwanese subject has the highest percentage of final stops deletion (54%) on the topic she was least familiar with, followed by the topic of ESL program (49%), religion (33%), pronunciation (32%), Singapore (30%) and New Year's Day (22%) respectively. The results seem to indicate that the degree of first language interference on second language learners' oral production differs between familiar topics and unfamiliar topics.

Study 2

METHODS

Participants of the second study consisted of six Taiwanese: three male, three female. The research design of the second study requires three steps in the collection of presentation data. The data of NNS presentation were collected individually according to the availability of each individual. First, an information form was distributed to the volunteers to elicit information concerning subjects'

topic interests and their language proficiency. Each subject filled out the information form, which included their name, age, date of arrival in the United States, etc. Unlike the previous studies, in which researchers assigned the discourse topic, in this study, the participants were asked to list the discourse topics on which they would prefer to talk because it is believed that it is the subject who knows which topic with which he/she is most familiar rather than the researchers. Participants were instructed to write down three topics that they felt they were knowledgeable about and that they felt were important to themselves and that they were interested in talking about. The subjects were also asked to list three topics about which they felt neutral. The researcher later met with subjects to reconfirm the topics each subject had chosen and to interview them concerning the process they went through in choosing topics. The domain topics and the general topics that each subject chose are presented in Table 12.

Insert Table 12 about here

The second stage of data collection consisted of a mini-presentation. After identifying the domain topics and general topics of each subject, each subject gave a presentation on the topic they chose. In order to avoid fatigue, each subject was asked to present to the researcher about one topic per meeting which lasted from five

to ten minutes. Subjects were allowed to use notes as desired. The presentation was audiotape recorded.

The third stage involved an oral interview with the subjects after each presentation. This interview included questions concerning their processes of selecting the topic and of presenting on the topic. The transcripts of the presentations were analyzed in terms of grammatical complexity, fluency and accuracy.

FINDINGS

A. Grammatical complexity

The grammatical complexity of the subjects' oral production was measured by computing the mean length of T-units, and the mean length of error-free T-units was calculated. The Wilcoxon Matched-Pairs Signed-Ranks Test was computed to examine the differences. The means in Table 13 show that the overall mean length of T-units produced by the subjects was 12.89 words for familiar topics and 11.44 words for unfamiliar topics. The Wilcoxon Matched-Pairs Signed-Ranks Test did not detect a significant difference between the two types of topics, $z=-1.5724$, $p> 0.05$.

Insert Table 13 about here

Although the cross-topic variation in grammatical complexity was not obvious, the length of T-units that subjects produced on the familiar topics was, generally speaking, slightly longer that that on the unfamiliar topics except for the subject HY. Interestingly, the shortest mean length of T-units that subject HY produced was on one of the familiar topics (topic 3: 9.37 words).

Even though little cross-topic variation in grammatical complexity measured by the length of T-units was observed, when consolidating the six topics as two large categories, cross-topic variation did arise in several individual subjects (i.e., subjects SK, HY, JJ, SJ) if comparing the subject's performance across each topic. For instance, differences between the length of T-units on subject SK's Topic 1 (familiar topic: 20.80 words) and Topic 3 (unfamiliar topic: 9.38 words) were striking. Similarly, the length of T-units the subject HY produced on the familiar topic 1(19.10 words) was much longer than that on the unfamiliar topic 1 (12.35 words).

In addition to the mean length of T-units, the mean length of error-free T-units was calculated. Table 14 illustrates that subjects produced error-free T-units having a mean length of 10.37 words on the familiar topics, and a mean length of 7.78 words on the unfamiliar topics. The Wilcoxon Matched-Paired Signed-Rank Test detects a significant difference on subjects' performance between the two types of topics, $z=-2.2014$, $p<0.05$. The mean length of error-free T-units was longest, again, on one of the familiar topics for all subjects except HY. For subject HY, the

longest and shortest mean length of error-free T-units both occur on one of the unfamiliar topics. Among six subjects, only two of them (i.e., SK, SJ) had longer mean length of error-free T-units on all three familiar topics than the other three unfamiliar topics.

Insert Table 14 about here

B. Fluency

As far as the speech rate is concerned, Table 15 shows an overall mean number of words uttered per minute of 76.11 words for the familiar topics and 61.99 words for the unfamiliar topics. This difference was deemed significant by the Wilcoxon Matched-Pairs Signed-Ranks Test, $Z = -1.9917$, $p<0.05$. The subjects, overall, are more fluent on topics they are familiar with.

Insert Table 15 about here

Table 16 illustrates that the mean length of time subjects spent on presenting the topics they are familiar with is longer than that on the topics they are not familiar with. The subjects had an overall mean length of time of 7.18 minutes on the familiar topics, compared to 5.59 minutes on the unfamiliar topics. The Wilcoxon Matched-Paired Signed Ranks Test detected a significant difference in the time span of presentation between the familiar topics and unfamiliar topics, $z=-1.9917$, $p<0.05$.

Insert Table 16 about here

Most of the subjects' time at talk is longer on the familiar topics than the unfamiliar topics, except for the subject JJ. The mean length of time at talk that subject JJ spent on the familiar topics is slightly shorter than that on the unfamiliar topics (6.44 vs. 6.5). The range of difference in the time at talk between the two types of topics varies. For the majority of subjects, the shortest time span of the presentation was on one of the unfamiliar topics.

C. Accuracy

The error rate was calculated by dividing the total number of errors found in the presentation of each topic by the total number of T-units. Table 17 reveals that the mean number of errors produced by the subjects was 1.01 per T-unit on the familiar topics and 1.03 on the unfamiliar topics. The Wilcoxon Matched-Paired Signed Ranks Test did not detect a significant difference in the error rate between the two types of topics, $z=-0.3145$, $p>0.05$. Upon examining each subject's performance difference between familiar and unfamiliar topics, it was found that three out of six subjects have a higher mean number of errors per T-unit on the topics that they are not familiar with.

Insert Table 17 about here

D. Language transfer : The omission of the final stops

Table 18 illustrates that the mean percentage of final stops deletion was lower (22.95%) on the familiar topics than on the unfamiliar topics (24.61%). However, the difference was not deemed to be significant by the Wilcoxon Matched-Paired Signed-Rank Test, $z=-0.6742$, $p>0,05$. With regard to individual performance, three out of six subjects (subject LM, HY, SK) have a final stops deletion percentage lower on the familiar topics than on the unfamiliar topics. Two other subjects (MJ, SJ) have a higher final stops deletion percentage on the unfamiliar topics. The speech production of subject JJ did not manifest across topic variation in terms of the final stops deletion.

Insert Table 18 about here

Interviews

Subjects' responses to the interview questions provide valuable information regarding issues such as how the subjects selected familiar and unfamiliar topics, how the presentation content was selected, and which aspects of language affect subjects' performance on the two types of topics. Most subjects reported that their decisions in selecting the topics and content of their presentations were based not only on the degree of familiarity they had on certain topics or content but also their language ability in expressing themselves on the topics and content. Most subjects noted that

they tried to avoid those topics and content on which their language abilities were limited.

In the course of the presentation, most subjects reported that their language abilities were the major constraint for their performance for both familiar topics and unfamiliar topics. The lack of vocabulary was especially perceived as a major obstacle for the presentation by most of the subjects. The familiar topics were considered to be easier to handle than the unfamiliar topics to present in terms of content selection and organization.

With regard to the relationship between subjects' perception of their performance and the results of the quantitative analysis, it shows that the subjects' perception did not always correspond to the results of the quantitative analysis. The perception that the three male subjects had regarding which familiar topic they performed the best corresponded to the results of quantitative analysis either in terms of syntactic complexity or fluency. Three female subjects' perception concerning which topic they performed the best did not concur with the results of quantitative analysis. For the female subjects, the mean length of T-units was the longest on the topic other than the one which they considered themselves to have performed the best on. The same was true for the fluency of their speech.

CONCLUSION

The present study examines the effects of discourse topics on interlanguage variation. Both the quantitative and qualitative data have shown that the discourse topics do affect second language learner's conversational participation. A subject's willingness to participate in a conversation depends on the degree of her familiarity with the topic. As far as grammatical complexity is concerned, in the NS-NNS interaction—the unplanned discourse— the degree of syntactic complexity of the Taiwanese subject's oral production changed according to her interests or involvement in the discourse topics. In the planned discourse (mini-presentation data), cross-topic variation was observed in the grammatical level when it was measured in terms of the mean length of error-free T-units. Similarly, the results of the fluency analysis manifested cross-topic variation in both conversational data and presentation data.

With regard to accuracy, in the NS-NNS interaction, the Taiwanese student produced the least accurate speech on the topic which she was not familiar with or interested in. In contrast with the conversation data, in the presentation data, five out of six subjects had the highest error rate on one of the familiar topics. The results showed that topic effects on syntactical accuracy differ among individuals. Three out of six subjects had the highest error rate and the lowest error rate on one of the topics that they were familiar with. Two subjects had the highest error rate on one of

the familiar topics and the lowest error rate on one of the unfamiliar topics. One subject had both highest and lowest error rate on one of the unfamiliar topics. Although the findings support the prediction made by Selinker and Douglas in the discourse domain hypothesis that discourse domains influence the syntactic units of IL learning, it was not clear how they influence those units. It was suspected that proficiency level may play a role regarding topic effects on the accuracy of learners' interlanguage. More research needs to be conducted in order to better understanding the relationship between discourse topic and proficiency level.

To investigate whether SLA processes such as language transfer occurs differentially across domains, one aspect of language transfer --the omission of final stops-- was examined. The results seem to indicate that the degree of first language interference on second language learners' oral production differs between familiar topics and unfamiliar topics, which supports the discourse domain hypothesis. In the NS-NNS interaction, the Taiwanese student has the highest percentage of final stops deletion (54%) on the topic she was least familiar with. In the presentation data, the mean percentage of final stops deletion was lower (22.95%) on the familiar topics than on the unfamiliar topics (24.61%).

Two pedagogical implications can be drawn from the present study. First, the topic variable needs to be taken into account when teachers assess students' oral proficiency. The findings of the present study indicate that the extent to which

second language learners are familiar with the discourse topic has a dramatic impact on the fluency of their oral production. Hence, a single test does not reveal the complete picture of a student's oral proficiency because the topic may help or hinder their performance. In order to make accurate judgments about students' oral proficiency, teachers need to have students speak on more than one topic.

Secondly, in classroom instruction, it is difficult for a teacher to choose topics which all students are interested in, familiar with, or willing to explore. But this does not mean that the teacher should avoid those seemingly less interesting or less engaging topics. On the contrary, it sets high demands on the teacher to strike a balance between the topics chosen and the activities built around the topic. If the teacher assumes that the students are not familiar with a certain topic, he or she may assist them to build up both their content knowledge and linguistic knowledge by providing "advance organizers" (Ausubel et al., 1978) in terms of related reading assignments and pre-introduction to the topic.

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Appendix

Topics	Time (Min)	Total amount of verbal exchanges	The amount of turns taken by Taiwanese student	The amount of turns taken by Japanese student	The amount of turns taken by NS
NEW YEAR'S DAY	9:20:41	126	42	42	42
PRONUNCIATION	17:18:24	78	31	18	29
RELIGION	27:47:31	86	33	20	36
SPORTS	6:20:69	70	10*	28	32
SINGAPORE	11:00:88	84	19	28	37
ESL PROGRAM	10:38:34	54	20	11	23

Table 1. Turn-taking pattern of the participants

Topics	Time (Min)	Total number of words in conversation	Total number of words in Taiwanese student's utterance	Total number of words in Japanese student's utterance	Total number of words in NS's utterance
NEW YEAR'S DAY	9:20:41	1195	445	381	369
PRONUNCIATION	17:18:24	2143	757	710	676
RELIGION	27:47:31	3468	947	319	2202
SPORTS	6:20:69	814	112*	328	374
SINGAPORE	11:00:88	1420	374	315	731
ESL PROGRAM	10:38:34	1147	299	176	672

Table 2. Number of words uttered by participants

Topics	Taiwanese student	Japanese student	Native speaker
NEW YEAR'S DAY	10.6	9.07	8.79
PRONUNCIATION	24.41	39.44	23.31
RELIGION	31.57	15.95	61.17
SPORT	11.2	11.71	11.69
SINGAPORE	19.68	11.25	19.76
ESL PROGRAM	14.95	16	29.22

Table 3. Average number of words uttered per turn (total number of words/total number of turn)

TOPICS	Total turns the Taiwanese student took (TOTAL TURN)	%TT(rank)	PART. LEVEL (PL) & PART VALUE (PV) (rank)	Part. Index (PI)	PI rank
NEW YEAR'S DAY	42(126)	33.33(4)	1.07 44.94 (2)	38.16	5
PRONUNCIATION	31(78)	39.74(1)	1.45 44.95 (1)	83.55	1
RELIGION	30(86)	34.88(3)	1.26 37.8 (3)	55.38	3
SPORTS	10(70)	14.29(6)	0.9 9 (6)	11.57	6
SINGA-PORE	19(54)	22.62(5)	1.37 26.03 (4)	42.46	4
ESL PROGRAM	20(54)	37.04(2)	1.25 25 (5)	57.88	2

Table 4. Overall Participation of Taiwanese subject

TOPICS	A (INTRODUCE NEW TOPIC) (%)	B (SELF-SELECTION) (%)	C (ALLOCATION (%)	D SEQUENCE (%)
NEW YEAR'S DAY	43.24	26.15	27.27	42.86
PRONUNCIATION	45.83	47.05	52.94	69.23
RELIGION	45.5	36.17	20	40
SPORTS	8.5	12.2	10	20
SINGAPORE	39.13	25.53	11.1	36.36
ESL PROGRAM	36.36	28.13	7.69	38.89

Table 5. Categorical Participation across topics by Taiwanese subject

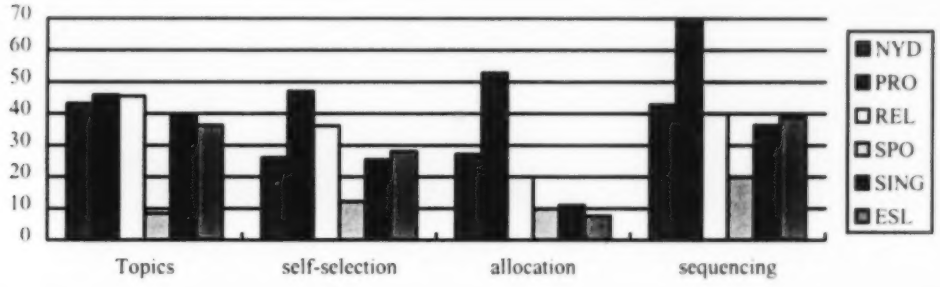

Figure 1. Categorical participation across topics by Taiwanese subect

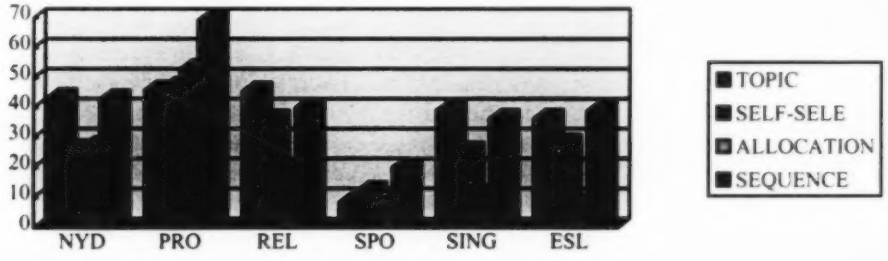

Figure 2. Categorical participation within the topic by Taiwanese subject

Topics	Chinese student (rank) [participation rank]	Japanese student
NEW YEAR'S DAY	8.71(5)[5]	8.2
PRONUNCIATION	9.2(3)[1]	10.6
RELIGION	10.8(1)[3]	8.1
SPORTS	6.9(6)[6]	8.3
SINGAPORE	8.97(4)[4]	8.5
ESL PROGRAM	9.32(2)[2]	8.43

Table 6. Average length of T-units

	New Year's Day	Pronunciation	Religion	Sports	Singapore	ESL program
T-units	41	56	92	13	36	26
TotalError	14	29	30	10	14	8
Error rate	0.34	0.51	0.33	0.76	0.39	031

Table 7. Error rate across topics

TOPIC	AMOUNT OF WORDS UTTERED BY CHINESE STUDENT PER MIN
NEW YEAR'S DAY	148.82(1)
PRONUNCIATION	144.19(2)
RELIGION	117.05(5)
SPORTS	115.46(6)
SINGAPORE	131.22(4)
ESL PROGRAM	135.29(3)

Table 8. Amount of words/per minute

Topics	Total numbers of t-units	numbers of t-units per minute
NEW YEAR'S DAY	41(2:59:41)	13.71(1)
PRONUNCIATION	56(5:15:15)	13.66(2)
RELIGION	92(8:05:51)	11.37(6)
SPORTS	13(1:03:12)	12.32(4)
SINGAPORE	36(2:50:87)	12.63(3)
ESL PROGRAM	26(2:12:37)	11.76(5)

Table 9. Numbers of T-units per minutes

	New Year's Day	Pronunci -ation	Religion	Sports	Singapore	ESL program
TIME (sec)						
total	560.41	1038.24	1667.31	380.69	660.88	638.34
Taiwanese	199	315	485.51	63.12	170.87	132.37
%	35.51	30.33	29.12	16.58	25.85	20.74
TURN						
Taiwanese	42	31	30	10	19	20
Average turn length (in time)	4.73	10.16	16.18	6.31	8.99	6.62

Table 10. Time at talk

TOPICS	/p/	/b/	/t/	/d/	/k/	/g/	Total final stops	/p/ deleted	/b/	/t/	/d/	/k/	/g/	% of deletion
New year's Day	0	0	52	27	17	2	98	0	0	14	8	0	0	22%
Pronunciation	7	0	113	24	17	0	161	2	0	42	7	1	0	32%
Religion	9	0	126	52	24	0	211	0	0	44	24	1	0	33%
Sports	1	0	21	14	3	0	39	0	0	11	10	0	0	54%
Singapore	0	0	65	27	17	0	109	0	0	25	8	0	0	30%
ESL program	1	0	32	14	12	0	59	0	0	18	10	1	0	49%

Table 11 The percentage of final stops omission.

Subject	Domain topics	General topics
HY (male)	1.Marketing management 2.Audio component 3.Expericnce in South Africa	1. Computer 2.Music 3.Art
SJ (male)	1.Syllabus 2.Mountains 3.Dissertation	1. Linguistics 2. Turkey 3. Beauty shop
SK (male)	1.Planning model 2.Influence diagram 3.Travel time	1.Computer 2. Sports 3.American food
JJ (female)	1.Music 2. A recently read book 3.Chinese New Year	1.Raising babies 2.America 3.Sports
LM (female)	1. Her baby 2. Pregnancy 3.An old friend	1.Africa 2. Tea 3. Swim
MJ (female)	1. Herself 2.Dissertation proposal 3. her mother	1. Cooking 2. Car 3. Brother-in-law

Table 12. Domain and General topics each subject chose

	FAMILIAR				UNFAMILIAR			
SUBJECTS	TOPIC1	TOPIC2	TOPIC3	MEAN (sd)	TOPIC1	TOPIC2	TOPIC3	MEAN & (sd)
MJ	11.54	12.09	10.77	12.40 (.66)	12.40	9.03	9.43	10.29 (1.84)
LM	11.73	10.23	12.91	11.07 (1.34)	11.07	10.64	10.56	10.76 (.27)
SK	20.80	12.26	12.63	15.23 (4.83)	9.54	12.14	9.38	10.35 (1.55)
HY	19.10	10.11	9.37	12.86 (5.42)	12.35	14.58	13.94	13.62 (1.55)
JJ	16.51	12.13	13.33	13.99 (2.26)	11.24	11.69	12.11	11.68 (.44)
SJ	10.64	10.36	15.43	12.14 (2.85)	11.06	10.24	11.08	10.79 (.48)
Mean (sd)		12.89 (2.89)				11.33 (1.02)		

Table 13. The length of T-units across topics

	FAMILIAR				UNFAMILIAR			
SUBJECTS	TOPIC1	TOPIC2	TOPIC3	MEAN (sd)	TOPIC1	TOPIC2	TOPIC3	MEAN & (sd)
MJ	10.15	8.55	5.82	8.17 (2.19)	9.6	8.37	5.48	7.82 (2.12)
LM	7.50	7.67	11.31	8.83 (2.15)	8.38	8.16	7.67	8.07 (0.36)
SK	23.40	9.89	10.25	14.51 (7.70)	8.20	7.63	8.68	8.17 (0.53)
HY	15.33	8.71	9.48	11.17 (3.62)	11.8	4.80	9.56	8.72 (3.57)
JJ	8.00	8.13	10.46	8.86 (1.38)	6.38	8.14	6.93	7.15 (.90)
SJ	10.00	9.21	12.86	10.69 (1.92)	7.56	6.70	8.89	7.72 (1.10)
Mean (sd)		10.37 (3.16)				7.78 (1.43)		

Table 14. The length of error-free T-units across topics

	FAMILIAR				UNFAMILIAR			
SUBJECTS	TOPIC1	TOPIC2	TOPIC3	MEAN (sd)	TOPIC1	TOPIC2	TOPIC3	MEAN & sd
MJ	64.64	60.30	64.71	63.22 (2.35)	61.90	53.48	58.38	57.92 (4.23)
LM	63.88	61.87	56.19	60.65 (3.99)	68.60	62.74	61.68	64.34 (3.73)
SK	94.70	82.21	95.67	90.86 (7.51)	60.93	54.34	64.89	60.05 (5.33)
HY	58.75	73.95	52.29	61.66 (11.12)	36.27	44.76	52.78	44.60 (8.26)
JJ	92.78	77.79	85.83	85.47 (7.50)	60.83	54.90	71.40	62.38 (8.36)
SJ	99.29	92.72	92.47	94.83 (3.87)	86.45	81.69	79.79	82.64 (3.43)
Mean (sd)		76.11 (6.09)				61.99 (5.56)		

Table 15 The words uttered per minute across topics

	Familiar				Unfamiliar			
	Topic1	Topic2	Topic3	mean	Topic1	Topic2	Topic3	mean
MJ	6.25	9.42	7.99	7.89	6.01	5.74	7.28	6.34
LM	11.02	6.95	10.34	9.43	4.84	4.24	4.28	4.45
JJ	6.23	8.42	4.66	6.44	6.28	7.45	5.77	6.5
HY	9.43	6.41	8.07	7.97	6.48	7.82	8.62	7.64
SK	4.53	2.53	7.39	4.81	2.79	3.63	5.44	3.95
SJ	7.09	6.59	5.84	6.51	4.87	4.26	4.85	4.66
mean		7.18				5.59		

Table 16. Time at talk

	Familiar				Unfamiliar			
	Topic1	Topic2	Topic3	mean (sd)	Topic1	Topic2	Topic3	mean (sd)
MJ	0.89	0.81	0.92	0.87 (.06)	1.07∗	1.00	0.65◎	0.91 (.23)
LM	1.57∗	1.12◎	1.31	1.33 (.23)	1.37	1.12◎	1.24	1.24 (.13)
JJ	2.03∗	0.98	1.00	1.34 (.60)	1.06	0.66◎	1.29	1.00 (.32)
HY	2.03∗	0.79	0.51◎	1.11 (.81)	1.24	1.83	1.52	1.53 (.30)
SK	0.43	0.50	0.71∗	0.55 (.15)	0.64	0.67	0.35◎	0.55 (.18)
SJ	0.45◎	1.00	1.20∗	0.88 (.39)	0.68	1.15	1.03	0.95 (.24)
mean	1.01				1.03			

Table 17. Error rate per T-unit. ∗: highest error rate; ◎: lowest error rate

	Familiar				Unfamiliar			
	Topic1	Topic2	Topic3	mean (sd)	Topic1	Topic2	Topic3	mean (sd)
MJ	25%	21%	31%	25.67% (5.03)	19%	12%	22%	17.67% (5.13)
LM	45%	27%	28%	33.33% (10.12)	42%	43%	36%	40.33% (3.79)
JJ	22%	18%	25%	21.67% (3.51)	17%	21%	27%	21.67% (5.03)
HY	36%	34%	39%	36.33% (2.52)	30%	41%	47%	39.33% (8.62)
SK	8%	0%	31%	13.00 (16.09)	23%	23%	21%	22.33% (1.15)
SJ	10%	2%	11%	7.67% (4.93)	5%	7%	7%	6.33% (1.15)
mean	22.95%				24.61%			

Table 18. The percentage of the deletion of the final stops